CORRES. CONTROL		
OUTGOING LTR. NO.		
DE ORDER #		
99-RF-04062+A29		
DIST.	LTR	ENC
ENSUSSEN, STAN		
AILSFORD, M.		
ORMOLINI, ANN		
IRDGE, LARRY		
ARD, BOB		
ILTON, JOHN		
ARDING, WYNN		
LL, JOHN		
ARTINEZ, LEN		
ARKER, ALAN		
OLSTON, STEVE		
ELTON, DAVE		
OORHEIS, GARY		
ORRES.CONTROL	X	X
OMIN RECRD/080		
AFFIC		
TS/T130G		
CLASSIFICATION:		
NI		
CLASSIFIED	X	
NFIDENTIAL		
CRET		
UTHORIZED CLASSIFIER SIGNATURE:		
te: 10/12/99		
REPLY TO RFP CC NO.:		
ACTION ITEM STATUS: PARTIAL/OPEN		
CLOSED		
LTR APPROVALS:		
ORIG. & TYPIST INITIALS: KAD:kjs		
45469 (Rev. 8/4/95)		

KAISER•HILL
COMPANY

October 12, 1999 99-RF-040(

Steve Tower
Senior D&D Project Lead
DOE, RFFO

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT FOR T112A AND T112C, REVISION 1, DATED SEPTEMBER 30, 1999 – KAD-022-99

Enclosed please find two copies of the Reconnaissance Level Characterization Report. This Report has been revised to incorporate your comments and the change in the disposition - decision regarding Trailer 112A. This trailer is considered waste and is not available for resale due to its physical condition.

Please forward a copy of the report to the Colorado Department of Public Health and Environment (CDPHE) for their information.

You can reach me at extension 6034 if there are any questions concerning this matter.

Kent Dorr
Project Manager
D&D Project Execution

KAD:kjs

Enclosure:
As Stated

Original & 1 cc – Steve Tower

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Mailing Address: P.O. Box 464, Golden, Colorado 80402-0464

V 6

Scott, Tom
From: Barnes, David
Sent: Wednesday, November 10, 1999 10:47 AM
To: Scott, Tom
Subject: FW: DPM Conversions

Importance: High

Tom,

This is the spreadsheet Luker and I used to convert our pCi/g lab sample results to dpm/100cm^2 surface contamination units (in conjunction with the DOE memo).

Specifically:

1. The nuclide, isotopic pCi/g results, and isotopic pCi/g MDA are taken from the lab report.
2. Approximate total sample weight and surface area are known quantities supplied by the sample team.
3. The lab digested a sub-sample with a surface area of ~1 inch square.

Therefore: $\frac{\text{(results in pCi/g)(total sample weight)(2.22 dpm/pCi)}}{\text{(total sample area)(6.4516 square cm/square inch)}}$

gives you dpm/cm^2

multiply by 100 for dpm/100cm^2 for results that are directly comparable to 5400.5 DCGLs.

(detailed unit conversion on spreadsheet)

-----Original Message-----
From: Luker, Steve
Sent: Thursday, September 09, 1999 9:38 AM
To: Barnes, David
Subject: DPM Conversions
Importance: High

Dave,

This is adapted from the 779 Project (they've used this template in a couple of reports).

The T112A #s have been input in this version.

Please compare w/ your numbers and review/modify/use as needed.

Call if questions or comments.

Thanks.

s luker x7291

T112A radchem conver1.xls

2

T112A Media Sample Results (dpm/100 cm^2)

LOCATION DESCRIPTION	SAMPLE LOCATION NUMBER	SITE SAMPLE ID	NUCLIDE	pCi/g	MDA (pCi/g)	APPROXIMATE WEIGHT (g)	APPROXIMATE SURFACE AREA (in^2)	INDIVIDUAL NUCLIDE (dpm/100cm^2)	ESTIMATED MDA (dpm/100cm^2)	URANIUM TOTAL (dpm/100cm^2) Limit=5000	TRANSURANIC TOTAL (dpm/100cm^2) Limit=100
T112A, roof center			U-233/234	0.264	0.034	144.00	192	6.8	0.9		
			U-235	0.016	0.042			0.4	1.1		
			U-238	0.270	0.050			7.0	1.3	14.2	
			Pu-239/240	0.000	0.045			0.0	1.2		
			Am-241	0.000	0.086			0.0	2.2		0.0
T112A, roof SW corner			U-233/234	0.259	0.072	129.00	192	6.0	1.7		
			U-235	0.000	0.043			0.0	1.0		
			U-238	0.332	0.035			7.7	0.8	13.7	
			Pu-239/240	0.017	0.045			0.4	1.0		
			Am-241	0.000	0.053			0.0	1.2		0.4

MIN	13.7	0.0
MAX	14.2	0.4
MEAN	13.9	0.2
SD	0.4	0.3
DOE Order 5400.5 Free-Release Threshold (DCGL)	5000	100

Unit conversion: dpm/100cm^2 = 100 X $\frac{\text{pCi}}{\text{g}} \times \frac{\text{\# of g}}{} \times \frac{\text{2.22 dpm}}{\text{pCi}} \times \frac{}{\text{\# of in}^2} \times \frac{\text{in}^2}{\text{6.4516 cm}^2}$

Isotope specific results in dpm/100cm^2 are then summed per DOE 5400.5 categories.

Table 4-4. Group A Buildings Paint/Surface Media Sample Results (dpm/100 cm^2).

T112A Media Sample Results (dpm/100 cm^2)

LOCATION DESCRIPTION	SAMPLE LOCATION NUMBER	SITE SAMPLE ID	NUCLIDE	pCi/g	MDA (pCi/g)	APPROXIMATE WEIGHT (g)	APPROXIMATE SURFACE AREA (in^2)	INDIVIDUAL NUCLIDE (dpm/100cm^2)	ESTIMATED MDA (dpm/100cm^2)	URANIUM TOTAL (dpm/100cm^2) Limit=*5000*	TRANSURANIC TOTAL (dpm/100cm^2) Limit=*100*
T112A, roof center			U-233/234	0.264	0.034	144.00	192	6.8	0.9		
			U-235	0.016	0.042			0.4	1.1		
			U-238	0.270	0.050			7.0	1.3	14.2	
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			Am-241	0.000	0.086			0.0	2.2		0.0
T112A, roof SW corner			U-233/234	0.259	0.072	129.00	192	6.0	1.7		
			U-235	0.000	0.043			0.0	1.0		
			U-238	0.332	0.035			7.7	0.8	13.7	
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MIN	13.7	0.0
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DOE Order 5400.5 Free-Release Threshold (DCGL)	5000	100

Unit conversion: dpm/100cm^2 = 100 X $\frac{\text{pCi}}{\text{g}} \times \frac{\text{\# of g}}{} \times \frac{\text{2.22 dpm}}{\text{pCi}} \times \frac{}{\text{\# of in}^2} \times \frac{\text{in}^2}{\text{6.4516 cm}^2}$

Isotope specific results in dpm/100cm^2 are then summed per DOE 5400.5 categories.

Scott, Tom

From: richard luker [rsluker@netscape.net]
Sent: Wednesday, November 10, 1999 10:40 AM
To: tom.scott@rfets.gov
Cc: dave.barnes@rfets.gov
Subject: Surface Activity Conversions

Tom,

As discussed, here's a summary of the conversion and the related V&V.

1) The calculations used in our report were the same as those used on the 779 D&D Project for MARSSIM free-release determinations.
2) The equation is documented within a spreadsheet/template (MS EXCEL), and has been verified through peer and QA reviews, and approved by DOE, CDPHE, and EPA Region VIII (e.g., the Bldg 729 Closeout report, B Annex report, Administrative Area Report, etc.)
3) The equation simply converts the concentration (pCi/g) of a paint/concrete matrix—scraped from a known surface area of interest—to dpm/100cm2 for the purpose of directly comparing sample results to DOE 5400.5 free-release limits.
4) The equation is conservative (toward estimating maximum alpha contamination) in that it translates total mass of the sample to the surface, where, in reality, some of the mass may be below the surface and any rads present below the surface would NOT contribute alpha activity as assumed in the conversion.
5) Barnes has the template we used if you need more detail.

Thanks (and sorry I missed the 9 o'clock).

Page me if questions 212-6534).

T112A Media Sample Results (dpm/100 cm^2)

LOCATION DESCRIPTION	SAMPLE LOCATION NUMBER	SITE SAMPLE ID	NUCLIDE	pCi/g	MDA (pCi/g)	APPROXIMATE WEIGHT (g)	APPROXIMATE SURFACE AREA (in^2)	INDIVIDUAL NUCLIDE (dpm/100cm^2)	ESTIMATED MDA (dpm/100cm^2)	URANIUM TOTAL (dpm/100cm^2) Limit=*5000*	TRANSURANIC TOTAL (dpm/100cm^2) Limit=*100*
T112A, roof center			U-233/234	0.264	0.034	144.00	192	6.8	0.9		
			U-235	0.016	0.042			0.4	1.1		
			U-238	0.270	0.050			7.0	1.3	14.2	
			Pu-239/240	0.000	0.045			0.0	1.2		
			Am-241	0.000	0.086			0.0	2.2		0.0
T112A, roof SW corner			U-233/234	0.259	0.072	129.00	192	6.0	1.7		
			U-235	0.000	0.043			0.0	1.0		
			U-238	0.332	0.035			7.7	0.8	13.7	
			Pu-239/240	0.017	0.045			0.4	1.0		
			Am-241	0.000	0.053			0.0	1.2		0.4

MIN	**13.7**	**0.0**
MAX	14.2	0.4
MEAN	13.9	0.2
SD	**0.4**	**0.3**
DOE Order 5400.5 Free-Release Threshold	**5000**	**100**

Unit conversion: dpm/100cm2 = $\frac{\text{pCi}}{\text{g}} \times \frac{\text{\# of g}}{} \times \frac{2.22\ \text{dpm}}{\text{pCi}} \times \frac{}{\text{\# of in}^2} \times \frac{\text{in}^2}{6.4516\ \text{cm}^2}$

This conversion produces dpm/cm^2. Multiply by 100 for dpm/100cm^2.

Isotope specific results in dpm/100cm^2 are then summed per DOE 5400.5 categories.